MDA Exhibit R-2 RDT&E Budget Item Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

COST ($ in Thousands)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	583463	718036	626264	653612	755163	665772	477109	354346
4030 Air-Based Boost	465194	584916	0	0	0	0	0	0
0710 Airborne Laser (ABL) Block 2004	0	0	344500	149500	0	0	0	0
0810 Airborne Laser (ABL) Block 2006	0	0	10000	85800	149500	78800	81400	55100
0910 Airborne Laser (ABL) Block 2008	0	0	255535	402168	582462	561417	366217	267352
4020 Sea-Based Boost	30070	0	0	0	0	0	0	0
4040 Space-Based Boost	23779	0	0	0	0	0	0	0
4010 Kinetic Energy Boost	0	91506	0	0	0	0	0	0
4043 Space Based Laser	46248	22856	0	0	0	0	0	0
4090/0602 Program Operations	18172	18758	16229	16144	23201	25555	29492	31894

A. Mission Description and Budget Item Justification

Note: Several projects funded in earlier years are no longer funded within this Program Element. Beginning in FY 2003, funding for the Space Based Laser program (Project 4043) transitioned to support MDA's Laser Technology Program (as part of Program Element 0603875C). For FY 2004-2009, funding for the Kinetic Energy Boost and Sea and Space Based Boost Programs (Projects 4010, 4020 & 4040 in FY 2002-2003) will transition into the Ballistic Missile Defense System (BMDS) Interceptor Program Element (0603886C), Projects 0913 and 0013.

Based on Presidential direction, MDA is developing an initial defensive operational capability that is based on the BMDS Test Bed and augmented with additional development assets. MDA will continue to employ the Test Bed for testing beyond initial fielding to evolve an integrated, layered Ballistic Missile Defense capability.

The Missile Defense Agency develops the Ballistic Missile Defense System (BMDS) using biennial capability blocks. This approach is the most efficient and effective way to get missile defense assets into the hands of the warfighters as quickly as possible while allowing for rapid insertion of emerging technology in the most affordable manner. These capability blocks will subsequently build on and be integrated with the predecessor blocks. Block capabilities are built by using complete elements and their individual components to integrate a single BMDS and provide layered defense against ballistic missiles during all flight phases, Boost, Midcourse, and Terminal, using multiple basing modes and phenomenology.

As part of the total BMDS, the Boost Defense Segment (BDS) Program Element (PE) funds the Boost-related element portions of Blocks 2004, 2006, and 2008 and other Boost-related mission area investment activities. The BMDS element in this Boost Defense Segment, Airborne Laser (ABL), provides a capability to destroy ballistic missiles in the boost phase of their trajectory, the segment from post launch through propellant burnout after which the missile enters the midcourse phase of ballistic flight. Destroying ballistic missiles in the boost phase is important to Ballistic Missile Defense (BMD) as threats can be negated long before they have an opportunity to deploy reentry vehicles, submunitions, or countermeasures, and debris from successful engagements can be precluded from affecting protected areas and assets.

ABL will design, build and test an air-based laser system to acquire, track, and kill ballistic missiles in their boost phase. The boost phase typically includes the first 60-300 seconds of flight and concludes at altitudes between 20-450 kilometers. ABL integrates three major subsystems (Laser, Beam Control, and Battle Management, Command, Control, Communications, Computers and Intelligence (BMC4I)) into a modified commercial Boeing 747-400 aircraft. ABL also includes ABL-specific ground support equipment. Some of the critical technical challenges to be addressed in the ABL effort include:

1) On-board sensors,
2) Optical coatings,

MDA Exhibit R-2 RDT&E Budget Item Justification	Date: February 2003
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3) Light weight flight hardware and high bandwidth adaptive optics;
4) Command and control, battle management, and communications (C2BMC) development; and
5) Development of operational concepts sufficient to support the quick reaction firing of DE weapons.

Early proof of principle activities includes a lethality demonstration (missile shootdown). These activities will show the feasibility of engaging a ballistic missile during the boost phase in a representative environment.

The flow-down of BMD System capability specifications resulting from Missile Defense National Team efforts in C2BMC and Systems Engineering & Integration will guide the integration of the Boost Defense Elements into the BMD System, the BMDS C2BMC architecture, and the BMD Test Bed.

Consistent with the MDA block management framework, the Airborne Laser (ABL) System Element of the BDS consists of Blocks 2004, 2006, and 2008:

1) ABL Block 2004 - The ABL initial development contract was awarded to the Boeing/TRW (now Northrop-Grumman)/Lockheed-Martin team in November 1996, to design, fabricate, integrate, and test an ABL aircraft with a laser device. The ABL Block 2004 (formerly PDRR) phase culminates in a lethality demonstration (missile shootdown) against boosting ballistic missile threat-representative targets and delivers one aircraft for integration and testing in the BMDS Test Bed. This aircraft will be capable of providing contingency capability, if directed, that offers rudimentary protection of the United States.

2) ABL Block 2006 - This effort will evaluate the capabilities of the ABL Block 2004 Test Bed against the spectrum of threats, including those not originally specified in the ABL PDRR effort. It will also enhance and test the integration of the ABL Block 2004 aircraft into the BMDS by leveraging software and limited hardware changes.

3) ABL Block 2008 and future blocks - This effort continues the development of the Air-Based Boost Defense capability consistent with BMDS needs. It will include maturation to a second test ABL aircraft that includes new technologies, with enhanced lethality, and additional operational suitability

Program Operations under this project covers personnel and related support costs, statutory and fiscal requirements. May include funding for government civilians performing program-wide oversight functions such as contracting, program integration, safety, quality and mission assurance at Missile Defense Agency (MDA); cost estimating; audit; technology integration across all MDA projects; and assessment of schedule, cost and performance, documentation of related programmatic issues and, foreign currency fluctuations on limited number of foreign contracts. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510.

B. Program Change Summary	FY 2002	FY 2003	FY 2004	FY 2005
Previous President's Budget (FY 2003 PB)	599835	796927	1389817	1399902
Current President's Budget (FY 2004 PB)	583463	718036	626264	653612
Total Adjustments	-16372	-78891	-763553	-746290
Congressional Specific Program Adjustments	0	-60000	0	0
Congressional Undistributed Adjustments	-4647	-12671	0	0
Reprogrammings	606	-6220	-763553	-746290
SBIR/STTR Transfer	-12331	0	0	0

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

COST ($ in Thousands)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
4030 Air-Based Boost	465194	584916	0	0	0	0	0	0
RDT&E Articles Qty	10	5	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

AIR-BASED BOOST

The Airborne Laser (ABL) is an element of the Ballistic Missile Defense System (BMDS). ABL Block 2004 and ABL Block 2008 designate capability levels. This nomenclature reflects the block designations of the BMDS. ABL will design, build and test an air-based laser system to acquire, track, and kill ballistic missiles in their boost phase. ABL integrates three major subsystems (Laser, Beam Control, and Battle Management, Command, Control, Communications, Computers and Intelligence (BMC4I)) into a modified commercial Boeing 747-400 aircraft. ABL also includes ABL-specific ground support equipment.

Starting in FY 2004, the Missile Defense Agency (MDA) has adopted a new work breakdown structure (WBS) for all Ballistic Missile Defense System (BMDS) elements to provide greater insight into funding requirements. Thus, funding requirements for FY 2004-2009 are now broken into capability blocks. In accordance with this new WBS, Air-based boost has been broken into three Airborne Laser (ABL) capability blocks (ABL Block 2004 -- Project 0710, ABL Block 2006 -- Project 0810, and ABL Block 2008 -- Project 0910).

ABL Block 2004 - The ABL initial development contract was awarded to the Boeing/TRW (now Northrop-Grumman)/Lockheed-Martin team in November 1996, to design, fabricate, integrate, and test an ABL aircraft with a laser device. The ABL Block 2004 (formerly PDRR) phase culminates in a lethality demonstration (missile shootdown) against boosting ballistic missile threat-representative targets and delivers one aircraft for integration and testing in the BMDS Test Bed. This aircraft will be capable of providing contingency capability, if directed, that offers rudimentary protection of the United States.

RDT&E Articles:
The test articles associated with Block 2004 will decrease risk and improve the probability of success for lethal shoot-down in CY 2004. The following targets will be delivered in the fiscal years specified:
FY 2002:
10 Lance Missiles.
FY 2003:
5 Lance Missiles.

ABL Block 2008 and future blocks - This effort continues the development of the Air-Based Boost Defense capability consistent with BMDS needs. It will include maturation to a second test ABL aircraft that includes new technologies, with enhanced lethality, and additional operational suitability.

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603883C Ballistic Missile Defense Boost Defense Segment

B. Accomplishments/Planned Program

	FY 2002	FY 2003	FY 2004	FY 2005
ABL Block 2004	371562	280200	0	0
RDT&E Articles (Quantity)	0	0	0	0

FY 2002 Accomplishments:
-- Successfully completed Laser Module 1 Testing.
-- Delivered and mounted surrogate laser turret and roll shell.
-- Coated Range Simulator Primary Mirror.
-- Started developmental flight testing.

FY 2003 Planned Accomplishments:
-- Deliver target and beacon illuminator lasers.
-- Complete integration and test of Beam Transfer Assembly and turret ball.
-- Successfully complete surveillance demonstration without the Active Ranger System.
-- Produce first light with high-energy laser at the system integration laboratory (SIL).

	FY 2002	FY 2003	FY 2004	FY 2005
ABL Block 2008	11175	236747	0	0
RDT&E Articles (Quantity)				

FY 2002 Accomplishment:
-- Started acquisition of long lead optics.

FY 2003 Planned Accomplishments:
-- Continue acquisition of long lead optics.
-- Initiate payments for commercial "green" 747-400 aircraft.
-- Award ABL Block 2008 contract, begin ABL Block 2008 development, and begin "Iron Bird" hardware acquisition.

	FY 2002	FY 2003	FY 2004	FY 2005
Government Activities	82457	67969	0	0
RDT&E Articles (Quantity)	10	5		

RDT&E Articles:
The test articles associated with Block 2004 will decrease risk and improve the probability of success for lethal shoot-down in CY 2004. The following targets will be delivered in the fiscal years specified:

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603883C Ballistic Missile Defense Boost Defense Segment

FY 2002:
10 Lance Missiles.
FY 2003:
5 Lance Missiles.

C. Other Program Funding Summary

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0603869C Meads Concepts - Dem/Val	0	114781	0	0	0	0	0	0		
PE 0603175C Ballistic Missile Defense Technology	145021	151130	240820	205791	200956	247990	287864	306472		
PE 0603879C Advanced Concepts, Evaluations and Systems	0	0	151696	216778	166308	193949	241947	234484		
PE 0603880C Ballistic Missile Defense System Segment	790535	1046652	0	0	0	0	0	0		
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	195800	136399	810440	924356	985514	805785	558071	371649		
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	3655089	3103844	3613266	3841412	2078522	1908511	1482389	1437923		
PE 0603884C Ballistic Missile Defense Sensors	312973	350436	438242	562752	706514	1043454	1152740	1261906		
PE 0603886C Ballistic Missile Defense System Interceptors	0	0	301052	541178	1127180	1729613	2558327	2904096		
PE 0603890C Ballistic Missile Defense System Engineering and Integration	0	0	483996	522458	604445	628594	703055	706501		
PE 0603888C Ballistic Missile Defense Test and Targets	0	0	611522	711181	661416	643302	639839	672396		
PE 0603889C Ballistic Missile Defense Products	0	0	343644	384763	333636	343447	349335	360951		
PE 0604861C Theater High-Altitude Area Defense System - TMD - EMD	818632	888323	0	0	0	0	0	0		
PE 0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD	130630	176155	0	0	0	0	0	0		
PE 0604867C Navy Area Theater Missile Defense - EMD	96121	0	0	0	0	0	0	0		

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

PE 0605502C Small Business Innovative Research - MDA	145102	0	0	0	0	0	0	0		
PE 0901585C Pentagon Reservation	6381	7432	14481	13384	12758	12850	13158	13476		
PE 0901598C Management Headquarters - MDA	30191	25365	93441	101373	114107	121743	128972	133499		

D. Acquisition Strategy

The flow down of BMD System capability specifications resulting from Missile Defense National Team efforts in C2BMC and Systems Engineering & Integration will guide the integration of the ABL system into the BMD System, the BMDS C2BMC architecture, and the BMDS Test Bed. The ABL system entered into a program definition and risk reduction contract in November 1996. Major subsystem development, integration, and testing are projected to continue in FY 2003. The program plan is structured to demonstrate technical achievements throughout the preliminary design and risk reduction phase, culminating in a lethality demonstration. This capability-based program takes a spiral development approach toward fielding an ABL System. The approach takes advantage of producing a line of ABL systems that systematically and incrementally adds more capability as the technology matures.

MDA Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

I. Product Development Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
ABL Block 2004												
ABL Block 2004 Contract	C/CPAF	Boeing Defense & Space Group/Seattle, WA		280200	1/4Q						280200	
ABL Block 2008												
ABL Block 2008	SS/CPAF	Boeing Defense & Space Group/Seattle, WA		236747	4Q						236747	
Subtotal Product Development			0	516947		0		0			516947	

Remarks

II. Support Costs Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
ABL Block 2004												
ABL Technical Supt Contracts	Various	Various		13800	1/4Q						13800	
ABL Government and other Supt	Various	Various		15871	1/4Q						15871	
ABL Block 2008												
ABL Block 2008	Various	Various		500	1/4Q						500	
ABL Block 2008	Various	Various		1098	1/4Q						1098	
Subtotal Support Costs			0	31269		0		0			31269	

Remarks

Numerous support contracts and types with various award dates.

MDA Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603883C Ballistic Missile Defense Boost Defense Segment

III. Test and Evaluation Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
ABL Block 2004												
Test Instruments	Various	Various		8000	1/4Q						8000	
Targets	MIPR	USASMDC/Huntsville AL		6500	1/4Q						6500	
Integrated Test Force	MIPR	AFFTC/Edwards AFB		17200	1/4Q						17200	
LFT&E	Various	Various		5000	1/4Q						5000	
Subtotal Test and Evaluation			0	36700		0		0			36700	

Remarks

IV. Management Services Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal Management Services												

Remarks

Project Total Cost			0	584916		0		0			584916	

Remarks

MDA Exhibit R-4 Schedule Profile	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Block 2004																																
First Light at System Integration Lab								△																								
Block 2008																																
Begin Iron Bird hardware acquisition								△																								
Contract Award								△																								
Initiate payments for commercial 'green' 747-400								△																								
Start acquisition of long-lead optics				▲																												

MDA Exhibit R-4A Schedule Detail	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Block 2004								
Complete integration/test of BTA and Turret Ball		3Q						
First Light at System Integration Lab		4Q						
Block 2008								
Begin Iron Bird hardware acquisition		4Q						
Contract Award		4Q						
Initiate payments for commercial 'green' 747-400		4Q						
Start acquisition of long-lead optics	4Q							

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603883C Ballistic Missile Defense Boost Defense Segment

COST ($ in Thousands)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
0710 Airborne Laser (ABL) Block 2004	0	0	344500	149500	0	0	0	0
RDT&E Articles Qty	0	0	3	2	0	0	0	0

A. Mission Description and Budget Item Justification

ABL Block 2004

The ABL initial development contract was awarded to the Boeing/TRW (now Northrop-Grumman)/Lockheed-Martin team in November 1996, to design, fabricate, integrate, and test an ABL aircraft with a laser device. The ABL Block 2004 (formerly PDRR) phase culminates in a lethality demonstration (missile shootdown) against boosting ballistic missile threat-representative targets and delivers one aircraft for integration and testing in the BMDS Test Bed. This aircraft will be capable of providing contingency capability, if directed, that offers rudimentary protection of the United States.

RDT&E Articles:
The test articles associated with Block 2004 will decrease risk and improve the probability of success for lethal shoot-down in CY 2004. The following targets will be delivered in the fiscal years specified:

FY 2004:
3 Foreign Military Assets.
FY 2005:
2 Foreign Military Assets.

B. Accomplishments/Planned Program

	FY 2002	FY 2003	FY 2004	FY 2005
ABL Block 2004			260200	97000
RDT&E Articles (Quantity)				

FY 2004/2005 Planned Program:
Contractor Integration and Test -- Continue Boeing/TRW (now Northrop-Grumman)/Lockheed-Martin Block 2004 program contract effort for integration and testing the ABL system, including post lethality demonstration activities in FY 2005.

FY 2002 Accomplishments:
-- This project is a continuation of the ABL Block 2004 effort described under Project 4030. Please refer to FY 2002 ABL Block 2004 accomplishments listed under Project 4030.

FY 2003 Planned Accomplishments:
-- This project is a continuation of the ABL Block 2004 effort described under Project 4030. Please refer to FY 2003 ABL Block 2004 planned accomplishments listed under Project 4030.

FY 2004 Planned Accomplishments:

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-- Complete ABL Block 2004 ground testing to include first light on the ABL Block 2004 aircraft.
-- First flight of the complete ABL Block 2004 weapon system.
-- Successful track and high energy laser engagement of an instrumented missile alternative.

FY 2005 Planned Accomplishments:
-- Complete lethality demonstration against a boosting ballistic missile.
-- Conduct post-shootdown flight testing.

	FY 2002	FY 2003	FY 2004	FY 2005
Government Activities			84300	52500
RDT&E Articles (Quantity)			3	2

FY 2004/2005 Planned Program:
Continue purchase of test instruments, conduct test activities at Edwards AFB, perform lethality assessments on ABL target sets, perform modeling and simulation activities, support development of BMDS specifications and plans, and acquire advisory and assistance services. Continue government operations and support for labor, training, travel, and equipment.

FY 2004 Planned Accomplishments:
-- Launch, recover, and refurbish an instrumented missile alternative
-- Complete optical fault system manager tool
-- Deliver atmospheric decision aid to support ABL testing

FY 2005 Planned Accomplishments:
-- Complete preparations for AF Link-16 testing
-- Complete preparations for system-level capability specification verification

RDT&E Articles:
The test articles associated with Block 2004 will decrease risk and improve the probability of success for lethal shoot-down in CY 2004. The following targets will be delivered in the fiscal years specified:

FY 2004:
3 Foreign Military Assets.
FY 2005:
2 Foreign Military Assets.

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
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C. Other Program Funding Summary

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0605502C Small Business Innovative Research - MDA	145102	0	0	0	0	0	0	0		
PE 0901585C Pentagon Reservation	6381	7432	14481	13384	12758	12850	13158	13476		
PE 0901598C Management Headquarters - MDA	30191	25365	93441	101373	114107	121743	128972	133499		
PE 0604867C Navy Area Theater Missile Defense - EMD	96121	0	0	0	0	0	0	0		
PE 0603880C Ballistic Missile Defense System Segment	790535	1046652	0	0	0	0	0	0		
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	195800	136399	810440	924356	985514	805785	558071	371649		
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	3655089	3103844	3613266	3841412	2078522	1908511	1482389	1437923		
PE 0603884C Ballistic Missile Defense Sensors	312973	350436	438242	562752	706514	1043454	1152740	1261906		
PE 0603886C Ballistic Missile Defense System Interceptors	0	0	301052	541178	1127180	1729613	2558327	2904096		
PE 0603890C Ballistic Missile Defense System Engineering and Integration	0	0	483996	522458	604445	628594	703055	706501		
PE 0603888C Ballistic Missile Defense Test and Targets	0	0	611522	711181	661416	643302	639839	672396		
PE 0603889C Ballistic Missile Defense Products	0	0	343644	384763	333636	343447	349335	360951		
PE 0604861C Theater High-Altitude Area Defense System - TMD - EMD	818632	888323	0	0	0	0	0	0		
PE 0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD	130630	176155	0	0	0	0	0	0		
PE 0603879C Advanced Concepts, Evaluations and Systems	0	0	151696	216778	166308	193949	241947	234484		
PE 0603869C Meads Concepts - Dem/Val	0	114781	0	0	0	0	0	0		
PE 0603175C Ballistic Missile Defense Technology	145021	151130	240820	205791	200956	247990	287864	306472		

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

D. Acquisition Strategy

The Airborne Laser will follow the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, spiral development, and evolutionary acquisition through the use of two-year capability blocks.

The Airborne Laser entered into a program definition and risk reduction contract in November 1996. Development, integration, and testing will continue in FY 2004. The program plan is structured to demonstrate technical achievements throughout the preliminary design and risk reduction phase, culminating in a lethality demonstration. This capability-based program takes a spiral development approach towards fielding an ABL system. It leverages the use of two test aircraft (Block 2004 and Block 2008) and a ground-based test facility ("Iron Bird"). The approach takes advantage of producing a line of ABLs that systematically and incrementally adds more capability as technology matures. This strategy produces ABL Block 2004, ABL Block 2006, and ABL Block 2008 capabilities during the development phase. ABL Block 2004 and the "Iron Bird" will integrate and test key technologies, allowing improved capabilities and integration of maturing technologies in ABL Block 2008. ABL Block 2006 will evaluate the capabilities of the ABL Block 2004 Test Bed against the spectrum of threats and enhance and test its integration into the BMDS by leveraging software and limited hardware changes.

MDA Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603883C Ballistic Missile Defense Boost Defense Segment

I. Product Development Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
ABL Block 2004												
	C/CPAF	Boeing Defense & Space Group/Seattle, WA				260200	1/4Q	97000	1/4Q		357200	
Subtotal Product Development			0	0		260200		97000			357200	

Remarks

II. Support Costs Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Government Activities												
Technical Support Costs	Various	Various/Various				14140	1/4Q	7530	1/4Q		21670	
Government and Other Support	Various	Various/Various				40160	1/4Q	23970	1/4Q		64130	
Subtotal Support Costs			0	0		54300		31500			85800	

Remarks

III. Test and Evaluation Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Government Activities												
Integrated Test Force	MIPR	AFFTC/Edwards AFB				25000	1/4Q	16000	1/4Q		41000	
LFT&E	Various	Various/Various				5000	1/4Q	5000	1/4Q		10000	
Subtotal Test and Evaluation			0	0		30000		21000			51000	

Remarks

MDA Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

IV. Management Services Cost ($ in Thousands)

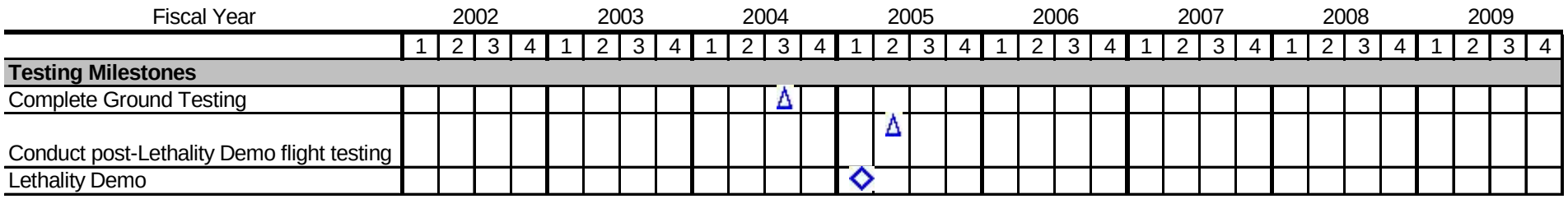
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal Management Services												

Remarks

Project Total Cost			0	0		344500		149500			494000	

Remarks

MDA Exhibit R-4 Schedule Profile	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**



MDA Exhibit R-4A Schedule Detail	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Testing Milestones								
Complete Ground Testing			3Q					
Conduct post-Lethality Demo flight testing				2Q				
Lethality Demo				1Q				

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603883C Ballistic Missile Defense Boost Defense Segment

COST ($ in Thousands)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
0810 Airborne Laser (ABL) Block 2006	0	0	10000	85800	149500	78800	81400	55100
RDT&E Articles Qty	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

ABL Block 2006

This effort will evaluate the capabilities of the ABL Block 2004 Test Bed against the spectrum of threats, including those not originally specified in the ABL PDRR effort. It will also enhance and test the integration of the ABL Block 2004 aircraft into the BMDS by leveraging software and limited hardware changes.

B. Accomplishments/Planned Program

	FY 2002	FY 2003	FY 2004	FY 2005
ABL Block 2006			9600	53000
RDT&E Articles (Quantity)				

FY 2004/2005 Planned Program:
Weapon System Development -- Start Block 2006 effort including enhancements to the capabilities of Block 2004 leveraging software and limited hardware changes. Candidate enhancements could include improvements in BMC4I, interoperability, pointing and tracking, and target engagement.

FY 2004 Planned Accomplishments:
-- Award first task order
-- Start design and software development of first task order for enhanced BMC4I capability.
-- Conduct down-select of additional enhancement options.

FY 2005 Planned Accomplishments:
-- Conduct demonstrations of enhanced BMC4I capabilities in ground test facility.
-- Award additional enhancement tasks.
-- Conduct design and test of additional enhancements.

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603883C Ballistic Missile Defense Boost Defense Segment

	FY 2002	FY 2003	FY 2004	FY 2005
ABL Block 2006 AVIT				22000
RDT&E Articles (Quantity)				

FY 2005 Planned Program:
Contractor Integration and Test -- Begin evaluation of ABL Block 2004 Test Bed capabilities against the spectrum of threats and its integration into the BMDS. Begin integration of candidate capability/supportability/ deployability enhancements and fund Block 2004 post-development flight test operations and sustainment.

FY 2005 Planned Accomplishments:
-- Award task order for and conduct post-development flight testing and aircraft sustainment.

	FY 2002	FY 2003	FY 2004	FY 2005
Government Activities			400	10800
RDT&E Articles (Quantity)				

FY 2004/2005 Planned Program:
Continue test activities at Edwards AFB and acquire advisory and assistance services. Continue government operations and support for labor, training, travel, and equipment.

C. Other Program Funding Summary

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0603889C Ballistic Missile Defense Products	0	0	343644	384763	333636	343447	349335	360951		
PE 0604861C Theater High-Altitude Area Defense System - TMD - EMD	818632	888323	0	0	0	0	0	0		
PE 0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD	130630	176155	0	0	0	0	0	0		
PE 0604867C Navy Area Theater Missile Defense - EMD	96121	0	0	0	0	0	0	0		
PE 0605502C Small Business Innovative Research - MDA	145102	0	0	0	0	0	0	0		
PE 0901585C Pentagon Reservation	6381	7432	14481	13384	12758	12850	13158	13476		
PE 0901598C Management Headquarters - MDA	30191	25365	93441	101373	114107	121743	128972	133499		

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

PE 0603175C Ballistic Missile Defense Technology	145021	151130	240820	205791	200956	247990	287864	306472		
PE 0603869C Meads Concepts - Dem/Val	0	114781	0	0	0	0	0	0		
PE 0603879C Advanced Concepts, Evaluations and Systems	0	0	151696	216778	166308	193949	241947	234484		
PE 0603880C Ballistic Missile Defense System Segment	790535	1046652	0	0	0	0	0	0		
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	195800	136399	810440	924356	985514	805785	558071	371649		
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	3655089	3103844	3613266	3841412	2078522	1908511	1482389	1437923		
PE 0603884C Ballistic Missile Defense Sensors	312973	350436	438242	562752	706514	1043454	1152740	1261906		
PE 0603886C Ballistic Missile Defense System Interceptors	0	0	301052	541178	1127180	1729613	2558327	2904096		
PE 0603890C Ballistic Missile Defense System Engineering and Integration	0	0	483996	522458	604445	628594	703055	706501		
PE 0603888C Ballistic Missile Defense Test and Targets	0	0	611522	711181	661416	643302	639839	672396		

D. Acquisition Strategy

The Airborne Laser will follow the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, spiral development, and evolutionary acquisition through the use of two-year capability blocks.

The Airborne Laser entered into a program definition and risk reduction contract in November 1996. Development, integration, and testing will continue in FY 2004. The program plan is structured to demonstrate technical achievements throughout the preliminary design and risk reduction phase, culminating in a lethality demonstration. This capability-based program takes a spiral development approach towards fielding an ABL system. It leverages the use of two test aircraft (Block 2004 and Block 2008) and a ground-based test facility ("Iron Bird"). The approach takes advantage of producing a line of ABLs that systematically and incrementally adds more capability as technology matures. This strategy produces ABL Block 2004, ABL Block 2006, and ABL Block 2008 capabilities during the development phase. ABL Block 2004 and the "Iron Bird" will integrate and test key technologies, allowing improved capabilities and integration of maturing technologies in ABL Block 2008. ABL Block 2006 will evaluate the capabilities of the ABL Block 2004 Test Bed against the spectrum of threats and enhance and test its integration into the BMDS by leveraging software and limited hardware changes.

MDA Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603883C Ballistic Missile Defense Boost Defense Segment

I. Product Development Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
ABL Block 2006												
ABL Block 2006 Contract	SS/Other	Boeing Defense & Space Group/Seattle, WA				9600	1Q	75000	1/4Q		84600	
Subtotal Product Development			0	0		9600		75000			84600	

Remarks

II. Support Costs Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Government Activities												
Technical Support Costs	Various	Various/Various				150	1/4Q	250	1/4Q		400	
Government and Other Support	Various	Various/Various				250	1/4Q	550	1/4Q		800	
Subtotal Support Costs			0	0		400		800			1200	

Remarks

III. Test and Evaluation Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Government Activities												
Integrated Test Force	MIPR	AFFTC/Edwards AFB						10000	1/4Q		10000	
Subtotal Test and Evaluation			0	0		0		10000			10000	

Remarks

MDA Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

IV. Management Services Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal Management Services												
Remarks												
Project Total Cost			0	0		10000		85800			95800	
Remarks												

MDA Exhibit R-4 Schedule Profile	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Testing Milestones																																
Award task order for continued Block 2004 flt test															△																	
Acquisition Milestones																																
Award First Task Order									△																							
Conduct demos of enhanced BMC4I capability																△																
Start Design of enhanced BMC4I capability									△																							

MDA Exhibit R-4A Schedule Detail	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Testing Milestones								
Award task order for continued Block 2004 flight test				3Q				
Acquisition Milestones								
Award First Task Order			1Q					
Conduct demos of enhanced BMC4I capability				4Q				
Start Design of enhanced BMC4I capability			1Q					

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603883C Ballistic Missile Defense Boost Defense Segment

COST ($ in Thousands)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
0910 Airborne Laser (ABL) Block 2008	0	0	255535	402168	582462	561417	366217	267352
RDT&E Articles Qty	0	0	0	1	0	0	0	0

A. Mission Description and Budget Item Justification

ABL Block 2008

This effort continues the development of the Air-Based Boost Defense capability consistent with BMDS needs. It will include maturation to a second test ABL aircraft that includes new technologies, with enhanced lethality, and additional operational suitability.

RDT&E Articles:
The commercial "green" 747-400 aircraft will be delivered in FY 2005.

B. Accomplishments/Planned Program

	FY 2002	FY 2003	FY 2004	FY 2005
ABL Block 2008			139735	213468
RDT&E Articles (Quantity)				

FY 2004/2005 Planned Program:
Weapon System Development -- Continue ABL Block 2008 contract effort for design, fabrication, integration, and testing the second ABL test aircraft.

FY 2002 Accomplishment:
-- This project is a continuation of the ABL Block 2008 effort described under Project 4030. Please refer to FY 2002 ABL Block 2008 accomplishment listed under Project 4030.

FY 2003 Planned Accomplishments:
-- This project is a continuation of the ABL Block 2008 effort described under Project 4030. Please refer to FY 2003 ABL Block 2008 planned accomplishments listed under Project 4030.

FY 2004 Planned Accomplishments:
-- Complete ABL Block 2008 requirements analysis and allocation and conduct ABL Block 2008 System Requirements Review (SRR).
-- Complete ABL Block 2008 preliminary design and conduct ABL Block 2008 Preliminary Design Review (PDR).

FY 2005 Planned Accomplishments:
-- Continue engineering design and conduct ABL Block 2008 Critical Design Review (CDR).
-- Begin modification of commercial "green" 747-400 aircraft.
-- Begin fabrication of ABL components.

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603883C Ballistic Missile Defense Boost Defense Segment

	FY 2002	FY 2003	FY 2004	FY 2005
Infrastructure Improvement			14000	10000
RDT&E Articles (Quantity)				

FY 2004/2005 Planned Program:
Continue procurement of long lead items (optics, etc) and sustains ABL-specific industrial base.

FY 2004 Planned Accomplishments:
-- Continue acquisition of long lead optics

FY 2005 Planned Accomplishments:
-- Take delivery of long lead optics

	FY 2002	FY 2003	FY 2004	FY 2005
Technology Insertion			10000	10000
RDT&E Articles (Quantity)				

FY 2004/2005 Planned Program:
Develop promising technologies for incorporation in ABL Block 2008 or future ABL blocks.

FY 2004 Planned Accomplishments:
-- Down select technologies for incorporation into the ABL Block 2008 technical baseline.

FY 2005 Planned Accomplishments:
-- Down select technologies for incorporation into the ABL Block 2008 technical baseline.

	FY 2002	FY 2003	FY 2004	FY 2005
Iron Bird			50000	50000
RDT&E Articles (Quantity)				

FY 2004/2005 Planned Program:
Continue design and development of system-level ground test facility, also referred to as the "Iron Bird."

FY 2004 Planned Accomplishments:
-- Conduct transition from system integration laboratory (SIL) to the "Iron Bird".

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

FY 2005 Planned Accomplishments:
-- Conduct ABL Block 2008 risk reduction activities in "Iron Bird".

	FY 2002	FY 2003	FY 2004	FY 2005
Commercial 747-400 Acquisition			40000	100000
RDT&E Articles (Quantity)				1

FY 2004/2005 Planned Program:
Continue payments for commercial "green" 747-400 aircraft.

FY 2004 Planned Accomplishments:
-- Continue payments for commercial "green" 747-400 aircraft.

FY 2005 Planned Accomplishments:
-- Take delivery commercial "green" 747-400 aircraft.

RDT&E Articles:
The commercial "green" 747-400 aircraft will be delivered in FY 2005.

	FY 2002	FY 2003	FY 2004	FY 2005
Government Activities			1800	18700
RDT&E Articles (Quantity)				

FY 2004/2005 Planned Program:
Continue advisory and assistance services and government operations and support for labor, training, travel, and equipment.

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

C. Other Program Funding Summary

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0603869C Meads Concepts - Dem/Val	0	114781	0	0	0	0	0	0		
PE 0603175C Ballistic Missile Defense Technology	145021	151130	240820	205791	200956	247990	287864	306472		
PE 0603879C Advanced Concepts, Evaluations and Systems	0	0	151696	216778	166308	193949	241947	234484		
PE 0603880C Ballistic Missile Defense System Segment	790535	1046652	0	0	0	0	0	0		
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	195800	136399	810440	924356	985514	805785	558071	371649		
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	3655089	3103844	3613266	3841412	2078522	1908511	1482389	1437923		
PE 0603884C Ballistic Missile Defense Sensors	312973	350436	438242	562752	706514	1043454	1152740	1261906		
PE 0603886C Ballistic Missile Defense System Interceptors	0	0	301052	541178	1127180	1729613	2558327	2904096		
PE 0603890C Ballistic Missile Defense System Engineering and Integration	0	0	483996	522458	604445	628594	703055	706501		
PE 0603889C Ballistic Missile Defense Products	0	0	343644	384763	333636	343447	349335	360951		
PE 0604861C Theater High-Altitude Area Defense System - TMD - EMD	818632	888323	0	0	0	0	0	0		
PE 0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD	130630	176155	0	0	0	0	0	0		
PE 0604867C Navy Area Theater Missile Defense - EMD	96121	0	0	0	0	0	0	0		
PE 0605502C Small Business Innovative Research - MDA	145102	0	0	0	0	0	0	0		
PE 0901585C Pentagon Reservation	6381	7432	14481	13384	12758	12850	13158	13476		
PE 0901598C Management Headquarters - MDA	30191	25365	93441	101373	114107	121743	128972	133499		
PE 0603888C Ballistic Missile Defense Test and Targets	0	0	611522	711181	661416	643302	639839	672396		

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

D. Acquisition Strategy

The Airborne Laser will follow the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, spiral development, and evolutionary acquisition through the use of two-year capability blocks.

The Airborne Laser entered into a program definition and risk reduction contract in November 1996. Development, integration, and testing will continue in FY 2004. The program plan is structured to demonstrate technical achievements throughout the preliminary design and risk reduction phase, culminating in a lethality demonstration. This capability-based program takes a spiral development approach towards fielding an ABL system. It leverages the use of two test aircraft (Block 2004 and Block 2008) and a ground-based test facility (Iron Bird). The approach takes advantage of producing a line of ABLs that systematically and incrementally adds more capability as technology matures. This strategy produces ABL Block 2004, ABL Block 2006, and ABL Block 2008 capabilities during the development phase. ABL Block 2004 and the "Iron Bird" will integrate and test key technologies, allowing improved capabilities and integration of maturing technologies in ABL Block 2008. ABL Block 2006 will evaluate the capabilities of the ABL Block 2004 Test Bed against the spectrum of threats and enhance and test its integration into the BMDS by leveraging software and limited hardware changes.

MDA Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603883C Ballistic Missile Defense Boost Defense Segment

I. Product Development Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
ABL Block 2008												
ABL Block 2008	SS/CPAF	Boeing Defense & Space Group/Seattle, WA				139735	1/4Q	213468	1/4Q	CONT.	353203	CONT.
Infrastructure Improvement												
Contract	SS/Other	Various/Various				14000	1/4Q	10000	1/4Q	CONT.	24000	CONT.
Technology Insertion												
Contract	SS/Various	Various/Various				10000	1/4Q	10000	1/4Q	CONT.	20000	CONT.
Iron Bird												
Contract	SS/CPAF	Boeing Defense & Space Group/Seattle, WA				50000	1/4Q	50000	1/4Q	CONT.	100000	CONT.
Commercial 747-400 Acquisition												
Contract	SS/FFP	Boeing Commercial A/C Group/Seattle, WA				40000	1/4Q	100000	1/4Q		140000	
Subtotal Product Development			0	0		253735		383468			637203	

Remarks

II. Support Costs Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Government Activities												
Technical Support Costs	Various	Various/Various				500	1/4Q	7500	1/4Q	CONT.	8000	CONT.
Government and Other Support	Various	Various/Various				1300	1/4Q	11200	1/4Q	CONT.	12500	CONT.
Subtotal Support Costs			0	0		1800		18700			20500	

Remarks

MDA Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

III. Test and Evaluation Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal Test and Evaluation												

Remarks

IV. Management Services Cost ($ in Thousands)

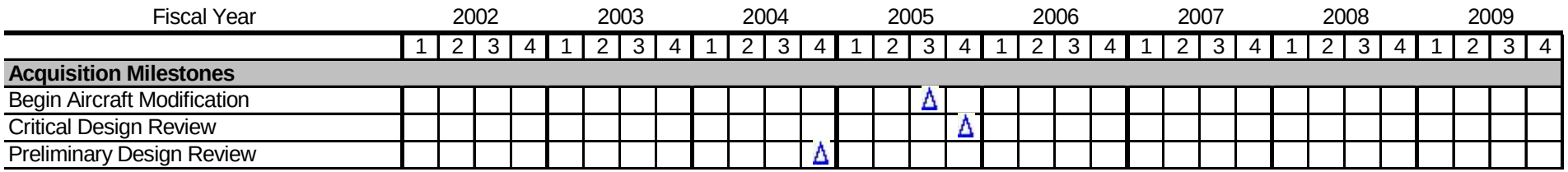
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal Management Services												

Remarks

Project Total Cost			0	0		255535		402168			657703	

Remarks

MDA Exhibit R-4 Schedule Profile	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**



MDA Exhibit R-4A Schedule Detail	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Acquisition Milestones								
Begin Aircraft Modification				3Q				
Critical Design Review				4Q				
Preliminary Design Review			4Q					

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

COST ($ in Thousands)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
4020 Sea-Based Boost	30070	0	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

In FY 2003, the Missile Defense Agency (MDA) combines funds under Projects 4020 (Sea-Based Boost) and 4040 (Space-Based Boost) in Project 4010 to develop the Block 2008 Kinetic Energy (KE) boost phase capability. See Project 4010 for a comprehensive description of the FY 2003 planned program. In FY 2004 and beyond, funding for these projects will transition into the BMDS Interceptor Program Element (PE) - 0603886C, Projects 0913 and 0013. Below is a description of FY 2002 accomplishments for Projects 4020 and 4040.

The MDA is developing a Ballistic Missile Defense System (BMDS) that protects the U.S., U.S. Allies, friends, deployed forces, and areas of vital interest by providing layered defenses to intercept ballistic missiles in all phases of flight - boost, midcourse, and terminal. MDA plans an evolutionary, spiral acquisition approach to achieve greater capability over time.

Creating a boost phase layer is fundamental to the MDA goal of a robust, integrated BMDS. By Block 2008, the MDA plans to develop and demonstrate, through flight-testing in the BMDS Test Bed, a mobile, ground-based boost phase capability that uses hit-to-kill technology. Based on the interceptor's dynamic performance, its initial capability may be extended into the ascent and midcourse phases. MDA will test the Block 2008 interceptor to demonstrate its potential application. This capability will evolve in subsequent Blocks to integrate with other launch platforms (e.g. sea-based) and fill capability shortfalls in the overall BMDS architecture. Throughout its development, the Block 2008 capability will rely heavily on existing hardware and proven technology.

B. Accomplishments/Planned Program

	FY 2002	FY 2003	FY 2004	FY 2005
Block 2008	30070			
RDT&E Articles (Quantity)				

FY 2002 Accomplishments:
o Completed concept definition and assessment work to define high payoff interceptor concepts and basing modes.
o Conducted multiple risk reduction experiments demonstrating the critical boost phase functionality.
o Targets of opportunity testing demonstrated the feasibility of critical boost phase components, e.g., tracking capabilities and sensor integration, and provided valuable phenomenological data.
o Initiated cooperative concept definition and assessment efforts with the MDA National Team to provide a foundation for future component development.

C. Other Program Funding Summary

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0604861C Theater High-Altitude Area Defense System - TMD - EMD	818632	888323	0	0	0	0	0	0		
PE 0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD	130630	176155	0	0	0	0	0	0		

MDA Exhibit R-2A RDT&E Project Justification								Date: February 2003		
APPROPRIATION/BUDGET ACTIVITY: 4. Advanced Component Development and Prototypes (ACD&P)							R-1 NOMENCLATURE: 0603883C Ballistic Missile Defense Boost Defense Segment			
PE 0604867C Navy Area Theater Missile Defense - EMD	96121	0	0	0	0	0	0	0		
PE 0605502C Small Business Innovative Research - MDA	145102	0	0	0	0	0	0	0		
PE 0901585C Pentagon Reservation	6381	7432	14481	13384	12758	12850	13158	13476		
PE 0901598C Management Headquarters - MDA	30191	25365	93441	101373	114107	121743	128972	133499		
PE 0603889C Ballistic Missile Defense Products	0	0	343644	384763	333636	343447	349335	360951		
PE 0603869C Meads Concepts - Dem/Val	0	114781	0	0	0	0	0	0		
PE 0603175C Ballistic Missile Defense Technology	145021	151130	240820	205791	200956	247990	287864	306472		
PE 0603880C Ballistic Missile Defense System Segment	790535	1046652	0	0	0	0	0	0		
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	195800	136399	810440	924356	985514	805785	558071	371649		
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	3655089	3103844	3613266	3841412	2078522	1908511	1482389	1437923		
PE 0603884C Ballistic Missile Defense Sensors	312973	350436	438242	562752	706514	1043454	1152740	1261906		
PE 0603886C Ballistic Missile Defense System Interceptors	0	0	301052	541178	1127180	1729613	2558327	2904096		
PE 0603890C Ballistic Missile Defense System Engineering and Integration	0	0	483996	522458	604445	628594	703055	706501		
PE 0603888C Ballistic Missile Defense Test and Targets	0	0	611522	711181	661416	643302	639839	672396		
PE 0603879C Advanced Concepts, Evaluations and Systems	0	0	151696	216778	166308	193949	241947	234484		

MDA Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603883C Ballistic Missile Defense Boost Defense Segment

I. Product Development Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Block 2008												
Experiment Component Devpt.	CPAF	Lockheed Martin/ Moorestown, NJ	6100								6100	
Experiment Component Design	CPAF	Raytheon/Tucson, AZ	10804								10804	
Component Risk Reduction	Various	Various	1900								1900	
Concept Development Support	Various	Various	5515								5515	
Subtotal Product Development			24319	0		0		0			24319	

Remarks

II. Support Costs Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal Support Costs												

Remarks

III. Test and Evaluation Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Block 2008												
Test & Evaluation	Other	SMDC/Huntsville, AL	1500								1500	
Subtotal Test and Evaluation			1500	0		0		0			1500	

Remarks

MDA Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

IV. Management Services Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Block 2008												
SETA/FFRDC	Various	Various	4251								4251	
Subtotal Management Services			4251	0		0		0			4251	
Remarks												
Project Total Cost			30070	0		0		0			30070	
Remarks												

MDA Exhibit R-4 Schedule Profile	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Program Milestones																																
a. Issue Broad Agency Announcements (BAA)		▲																														
b. Concept Assessment Complete				▲																												

MDA Exhibit R-4A Schedule Detail	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Program Milestones								
a. Issue Broad Agency Announcements (BAA)	2Q							
b. Concept Assessment Complete	4Q							

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

COST ($ in Thousands)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
4040 Space-Based Boost	23779	0	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

In FY 2003 MDA combines funds under Projects 4020 and 4040 to develop the Block 2008 boost phase capability. See Project 4020 for the combined KE Boost project accomplishments and description for FY 2002. For FY 2003 planned program detail, see Project 4010.

B. Accomplishments/Planned Program

	FY 2002	FY 2003	FY 2004	FY 2005
Block 2008	23779			
RDT&E Articles (Quantity)				

In FY 2003 MDA combines funds under Projects 4020 and 4040 to develop the Block 2008 boost phase capability. See Project 4020 for the combined KE Boost project accomplishments and description in FY 2002. For FY 2003 planned program detail, see Project 4010.

C. Other Program Funding Summary

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0603869C Meads Concepts - Dem/Val	0	114781	0	0	0	0	0	0		
PE 0603175C Ballistic Missile Defense Technology	145021	151130	240820	205791	200956	247990	287864	306472		
PE 0603879C Advanced Concepts, Evaluations and Systems	0	0	151696	216778	166308	193949	241947	234484		
PE 0603880C Ballistic Missile Defense System Segment	790535	1046652	0	0	0	0	0	0		
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	195800	136399	810440	924356	985514	805785	558071	371649		
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	3655089	3103844	3613266	3841412	2078522	1908511	1482389	1437923		
PE 0603884C Ballistic Missile Defense Sensors	312973	350436	438242	562752	706514	1043454	1152740	1261906		
PE 0603886C Ballistic Missile Defense System Interceptors	0	0	301052	541178	1127180	1729613	2558327	2904096		

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

PE 0603890C Ballistic Missile Defense System Engineering and Integration	0	0	483996	522458	604445	628594	703055	706501		
PE 0603888C Ballistic Missile Defense Test and Targets	0	0	611522	711181	661416	643302	639839	672396		
PE 0603889C Ballistic Missile Defense Products	0	0	343644	384763	333636	343447	349335	360951		
PE 0604861C Theater High-Altitude Area Defense System - TMD - EMD	818632	888323	0	0	0	0	0	0		
PE 0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD	130630	176155	0	0	0	0	0	0		
PE 0604867C Navy Area Theater Missile Defense - EMD	96121	0	0	0	0	0	0	0		
PE 0605502C Small Business Innovative Research - MDA	145102	0	0	0	0	0	0	0		
PE 0901585C Pentagon Reservation	6381	7432	14481	13384	12758	12850	13158	13476		
PE 0901598C Management Headquarters - MDA	30191	25365	93441	101373	114107	121743	128972	133499		

MDA Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

I. Product Development Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Block 2008												
Experiment Component Devpt.	SS/CPFF	Boeing/Canoga Pk., CA	5500								5500	
Experiment Component Design	SS/CPAF	Raytheon/Tucson, AZ	842								842	
Component Risk Reduction	Various	Various	785								785	
Concept Development Support	Various	Various	13652								13652	
Subtotal Product Development			20779	0		0		0			20779	

Remarks

II. Support Costs Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal Support Costs												

Remarks

III. Test and Evaluation Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal Test and Evaluation												

Remarks

MDA Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

IV. Management Services Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Block 2008												
SETA/FFRDC	Various	Various	3000								3000	
Subtotal Management Services			3000	0		0		0			3000	
Remarks												
Project Total Cost			23779	0		0		0			23779	
Remarks												

MDA Exhibit R-4 Schedule Profile	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Program Milestones																																
a. Issue Broad Agency Announcements (BAA)		▲																														
b. Concept Assessment Complete				▲																												

MDA Exhibit R-4A Schedule Detail	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Program Milestones								
a. Issue Broad Agency Announcements (BAA)	2Q							
b. Concept Assessment Complete	4Q							

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603883C Ballistic Missile Defense Boost Defense Segment

COST ($ in Thousands)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
4010 Kinetic Energy Boost	0	91506	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

In FY 2003, The Missile Defense Agency (MDA) combines funds under Projects 4020 (Sea-Based Boost) and 4040 (Space-Based Boost) in Project 4010 to develop the Block 2008 Kinetic Energy (KE) boost phase capability. In FY 2004 and beyond, the project will transition to the BMDS Interceptor Program Element (PE) -0603886C. A comprehensive description of this effort can be found in PE 0603886C, Projects 0913 and 0013.

The MDA is developing a Ballistic Missile Defense System (BMDS) that protects the U.S., U.S. Allies, friends, deployed forces, and areas of vital interest by providing layered defenses to intercept ballistic missiles in all phases of flight - boost, midcourse, and terminal. MDA plans an evolutionary, spiral acquisition approach to achieve greater capability over time.

Creating a boost phase layer is fundamental to the MDA goal of a robust, integrated BMDS. By Block 2008, the MDA plans to develop and demonstrate, through flight-testing in the BMDS Test Bed, a mobile, ground-based boost phase capability that uses hit-to-kill technology. Based on the interceptor's dynamic performance, its initial capability may be extended into the ascent and midcourse phases. MDA will test the Block 2008 interceptor to demonstrate its potential application. This capability will evolve in subsequent Blocks to integrate with other launch platforms (e.g. sea-based) and fill capability shortfalls in the overall BMDS architecture. Throughout its development, the Block 2008 capability will rely heavily on existing hardware and proven technology.

B. Accomplishments/Planned Program

	FY 2002	FY 2003	FY 2004	FY 2005
Block 2008		91506		
RDT&E Articles (Quantity)				

FY 2002 accomplishments are described in Projects 4020 and 4040. For completeness, these descriptions are repeated below.

FY 2002 Accomplishments:

o Completed concept definition and assessment work to define high payoff interceptor concepts and basing modes.
o Conducted multiple risk reduction experiments demonstrating the critical boost phase functionality.
o Targets of opportunity testing demonstrated the feasibility of critical boost phase components, e.g., tracking capabilities and sensor integration, and provided valuable phenomenological data.
o Initiated cooperative concept definition and assessment efforts with the MDA National Team to provide a foundation for future component development.

FY 2003 Planned Program:

o Award multiple concept design contracts for a down-select to one capability developer in FY 2004 for development of the Block 2008 capability.
o Commence Near-Field InfraRed Experiment (NFIRE) development to collect near-field plume and hardbody data from several targets of opportunity and a dedicated target. MDA will use this data to develop homing algorithms for boost phase endgame, model development, and verification. The NFIRE satellite payload will carry a suite of sensors that will collect data across a broad electromagnetic spectrum from long-wave infrared to visible. In addition, critical data will be collected for early launch detection, sensor tracking, and characterizing the earth background.

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

o Integrate and test the Generation 2 kill vehicle (KV) in preparation for a FY 2004 hover test and integration into the near-field experiment payload. Second generation KE Boost KVs are mature variants of existing MDA developed KV components. They will be the first KVs with the performance to reliably achieve boost phase intercept.
o Continue KE Boost Test Bed development throughout FY 2003.
o Conduct real-time fire control/command and control, battle management, and communications (C2BMC) exercises and simulated engagements using space launch and ballistic missile targets of opportunity.
o Using ground-based and air-based sensors, collect boost/ascent phase data on targets of opportunity to support Block 2008 capability development.

C. Other Program Funding Summary

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0603869C Meads Concepts - Dem/Val	0	114781	0	0	0	0	0	0		
PE 0603175C Ballistic Missile Defense Technology	145021	151130	240820	205791	200956	247990	287864	306472		
PE 0603879C Advanced Concepts, Evaluations and Systems	0	0	151696	216778	166308	193949	241947	234484		
PE 0603880C Ballistic Missile Defense System Segment	790535	1046652	0	0	0	0	0	0		
PE 0603889C Ballistic Missile Defense Products	0	0	343644	384763	333636	343447	349335	360951		
PE 0604861C Theater High-Altitude Area Defense System - TMD - EMD	818632	888323	0	0	0	0	0	0		
PE 0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD	130630	176155	0	0	0	0	0	0		
PE 0604867C Navy Area Theater Missile Defense - EMD	96121	0	0	0	0	0	0	0		
PE 0605502C Small Business Innovative Research - MDA	145102	0	0	0	0	0	0	0		
PE 0901585C Pentagon Reservation	6381	7432	14481	13384	12758	12850	13158	13476		
PE 0901598C Management Headquarters - MDA	30191	25365	93441	101373	114107	121743	128972	133499		
PE 0603888C Ballistic Missile Defense Test and Targets	0	0	611522	711181	661416	643302	639839	672396		
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	195800	136399	810440	924356	985514	805785	558071	371649		
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	3655089	3103844	3613266	3841412	2078522	1908511	1482389	1437923		

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

PE 0603884C Ballistic Missile Defense Sensors	312973	350436	438242	562752	706514	1043454	1152740	1261906		
PE 0603886C Ballistic Missile Defense System Interceptors	0	0	301052	541178	1127180	1729613	2558327	2904096		
PE 0603890C Ballistic Missile Defense System Engineering and Integration	0	0	483996	522458	604445	628594	703055	706501		

D. Acquisition Strategy

The KE Boost project will follow the MDA's capability-based acquisition strategy that emphasizes testing, spiral development, and evolutionary acquisition through the use of two-year capability blocks. The overall program objective is to add a limited KE Boost layer to the BMDS Block 2008 capability, fielding more robust capabilities in subsequent Blocks. In FY 2002, the near-field experiment contract was awarded as a result of a Broad Area Announcement competition. In FY 2003, multiple Block 2008 concept design contracts will be awarded with a down select to one capability development contractor in FY 2004. (See PE 0603886C (BMDS Interceptors), Projects 0913 and 0013, for the acquisition strategy in FY 2004 and beyond.)

MDA Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603883C Ballistic Missile Defense Boost Defense Segment

I. Product Development Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Block 2008												
Ground Based	C/Various	TBD		30000	3Q					CONT.	30000	CONT.
Sensor Integration	MIPR	SBIRS SPO/Los Angeles AFB,CA		2065	1/2Q					CONT.	2065	CONT.
Subtotal Product Development			0	32065		0		0			32065	

Remarks

II. Support Costs Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Block 2008												
SETA	Various	Various		5086	1/3Q					CONT.	5086	CONT.
Capability Engineering	MIPR	NSWC/DD /Dahlgren, VA		1250	1/2Q					CONT.	1250	CONT.
Subtotal Support Costs			0	6336		0		0			6336	

Remarks

III. Test and Evaluation Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Block 2008												
Test Planning & Execution	Other	SMDC/Huntsville, AL		2000	1/2Q					CONT.	2000	CONT.
Test Planning & Execution	MIPR	NSWC/PHD/Port Hueneme, CA		3205	1/2Q					CONT.	3205	CONT.
Test Bed Development & Test	MIPR	SMDC/Hunstville, AL		1600	1/2Q					CONT.	1600	CONT.

MDA Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603883C Ballistic Missile Defense Boost Defense Segment

Test Bed Development & Test	MIPR	AFRL/Kirtland AFB, NM		2100	1/2Q					CONT.	2100	CONT.
Boost Kill Vehicle	Other	Raytheon and Navy EA/Tucson, AZ		12100	1/2Q					CONT.	12100	CONT.
Boost Kill Vehicle	Other	AFRL/Kirtland AFB, NM		2500	1/2Q					CONT.	2500	CONT.
Near Field Infrared Experiment	Other	SMC Det 12/Kirtland AFB, NM		7000	1/2Q					CONT.	7000	CONT.
Near Field Infrared Experiment		Spectrum Astro/Gilbert, AZ		15500	1/2Q					CONT.	15500	CONT.
Near Field Infrared Experiment	Other	AFRL/Kirtland AFB, NM		6000	1/2Q					CONT.	6000	CONT.
Near Field Infrared Experiment	Other	Raytheon and Navy EA/Tucson, AZ		600	1/2Q					CONT.	600	CONT.
Subtotal Test and Evaluation			0	52605		0		0			52605	

Remarks

IV. Management Services Cost ($ in Thousands)

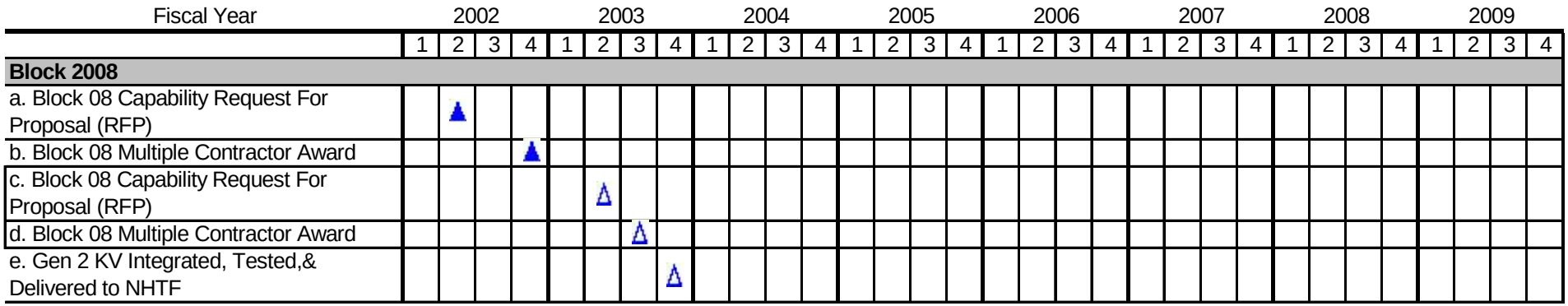
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Block 2008												
FFRDC	MIPR	MIT/LL/Hanscom AFB,MA		100	1/2Q					CONT.	100	CONT.
FFRDC	Various	JHU/APL/Laurel, MD		400	1/2Q					CONT.	400	CONT.
Subtotal Management Services			0	500		0		0			500	

Remarks

Project Total Cost			0	91506		0		0			91506	

Remarks

MDA Exhibit R-4 Schedule Profile	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**



MDA Exhibit R-4A Schedule Detail	Date **February 2003**
APPROPRIATION/BUDGET ACTIVITY **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603883C Ballistic Missile Defense Boost Defense Segment**

Schedule Profile	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Block 2008								
a. Issue Broad Agency Announcements (Proj. 4020)	2Q							
b. Concept Assessment Complete (Proj. 4020)	4Q							
c. Block 08 Capability Request For Proposal (RFP)		2Q						
d. Block 08 Multiple Contractor Award		3Q						
e. Gen 2 KV Integrated, Tested,& Delivered to NHTF		4Q						

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603883C Ballistic Missile Defense Boost Defense Segment

COST ($ in Thousands)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
4043 Space Based Laser	46248	22856	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

The Missile Defense Agency (MDA) will continue to pursue directed energy (DE) technologies as an important component of the BMD System. Directed energy applications remain among the highest priorities actively pursued as a part of MDA's technology effort.

In FY 2002, the Space-Based Laser program was reevaluated in its entirety. Results of this review included a general program restructure and the cessation of prior SBL-specific program goals. In FY 2003 and beyond, the legacy SBL program will be evolved into a Laser Technology program and will be managed as part of the Advanced Systems (AS) program. This directorate will focus efforts and build on existing knowledge to further refine the DE concept and provide options for future system production. Emergent technologies resulting from this investment will provide MDA with the ability to pursue DE systems, possibly including a Space-Based DE program. This strategy is consistent with the MDA spiral development and evolutionary acquisition approach to building effective and capable missile defenses.

Laser Technology: The Laser Technology program focuses on developing lasers and related component technology for low power applications including tracking, weapon guidance, and imaging, while investing in high-energy laser technologies that could lead to a future Space-Based Laser effort. The emphasis on low-power systems is driven by their considerable potential to improve and support MDA's hit-to-kill weapons.

B. Accomplishments/Planned Program

	FY 2002	FY 2003	FY 2004	FY 2005
Space Based Laser	46248	22856		
RDT&E Articles (Quantity)				

FY 2002 Accomplishments:

Successfully completed system level SBL Integrated Flight Experiment (IFX)design that satisfied performance requirements to destroy a boosting missile from space using a high-energy laser as specified in the Statement of Objectives.

Assembled and characterized the first diagnostic for making MHz frequency subaperture measurements on a high energy laser beam (MITS--MHz Intensity and Tilt Sensor).

Successfully made the first MHz frequency subaperture measurements on a high energy laser beam (Alpha test HL913) and demonstrated that the high temporal frequency subaperture slope content of the beam was small. In addition, HL913 was very successful by being one of the longest high-energy tests performed with Alpha at 8 seconds.

Completed CDR on the Short Stack laser risk reduction Test Bed to validate the performance models used in the IFX laser design.

Completed testing of three Advanced Nozzle configurations for improved HF/HFOT/DF laser performance (SBL developed hardware, testing co-funded by JTO).

Efficiently closed out the Team SBL IFX contract for development and spaceflight of the SBL Integrated Flight Experiment. Allocated remaining FY 2002 funds to laser system technology efforts.

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

FY 2003 Planned Program:

Major Projects: The Agency plans to select concepts and award contracts for two focused technology projects in FY 2003, and award a third similar contract in FY 2004. These projects will be drawn from proposals solicited from the laser and electro-optics industry. Candidates include a major effort to improve the laser transmitters for laser radars in the next 5 years, solid-state laser weapons development that also develops high-power illuminator systems, relay-mirror technology that could support a future integrated laser architecture of air-, ground-, and space-based platforms, and advanced research on chemical lasers to re-invigorate the search for an affordable Space Based Laser.

Technology Base activity: This funding supports a wide range of efforts deemed worthy of investigation for potential application to the BMD System, yet insufficiently mature to warrant major contract award. Technology Base projects will include research into highly advanced solid-state and chemical laser concepts requiring laboratory validation, new concepts for kinetic weapon guidance via remote lasers, and new detector concepts to enable future laser radars to discriminate moving targets using motion and shape features.

Leveraging of successful projects initiated under the High Energy Laser (HEL) Joint Technology Office (JTO): Promising JTO projects with specific applicability to ballistic missile defense will be selected for intensified funding under MDA auspices, in to rapidly exploit breakthroughs and successes achieved under the JTO program and apply them to missile defense applications.

C. Other Program Funding Summary

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0604867C Navy Area Theater Missile Defense - EMD	96121	0	0	0	0	0	0	0		
PE 0605502C Small Business Innovative Research - MDA	145102	0	0	0	0	0	0	0		
PE 0901585C Pentagon Reservation	6381	7432	14481	13384	12758	12850	13158	13476		
PE 0901598C Management Headquarters - MDA	30191	25365	93441	101373	114107	121743	128972	133499		
PE 0604865C Patriot PAC-3 Theater Missile Defense Acquisition - EMD	130630	176155	0	0	0	0	0	0		
PE 0603175C Ballistic Missile Defense Technology	145021	151130	240820	205791	200956	247990	287864	306472		
PE 0603869C Meads Concepts - Dem/Val	0	114781	0	0	0	0	0	0		
PE 0603879C Advanced Concepts, Evaluations and Systems	0	0	151696	216778	166308	193949	241947	234484		
PE 0603880C Ballistic Missile Defense System Segment	790535	1046652	0	0	0	0	0	0		
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	195800	136399	810440	924356	985514	805785	558071	371649		
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	3655089	3103844	3613266	3841412	2078522	1908511	1482389	1437923		

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

PE 0603884C Ballistic Missile Defense Sensors	312973	350436	438242	562752	706514	1043454	1152740	1261906		
PE 0603886C Ballistic Missile Defense System Interceptors	0	0	301052	541178	1127180	1729613	2558327	2904096		
PE 0603890C Ballistic Missile Defense System Engineering and Integration	0	0	483996	522458	604445	628594	703055	706501		
PE 0603888C Ballistic Missile Defense Test and Targets	0	0	611522	711181	661416	643302	639839	672396		
PE 0603889C Ballistic Missile Defense Products	0	0	343644	384763	333636	343447	349335	360951		
PE 0604861C Theater High-Altitude Area Defense System - TMD - EMD	818632	888323	0	0	0	0	0	0		

D. Acquisition Strategy

Space Based Laser will follow the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, spiral development, and evolutionary acquisition through the use of two-year capability blocks.

MDA Exhibit R-3 RDT&E Project Cost Analysis

Date: **February 2003**

APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**

R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

I. Product Development Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Space Based Laser												
SBL IFX Joint Venture Team	Various	Boeing, Lockheed, TRW/El Segundo, CA	30000								30000	
Other	Various	Various	13404								13404	
Laser Technology Program	Various	Various		20570	2Q						20570	
Subtotal Product Development			43404	20570		0		0			63974	

Remarks

II. Support Costs Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Space Based Laser												
SBL IFX Technical Support	Various	Various	3444		2Q						3444	
Laser Technology Support	Various	Various		2286	2Q						2286	
Subtotal Support Costs			3444	2286		0		0			5730	

Remarks

III. Test and Evaluation Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal Test and Evaluation												

Remarks

MDA Exhibit R-3 RDT&E Project Cost Analysis	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE: **0603883C Ballistic Missile Defense Boost Defense Segment**

IV. Management Services Cost ($ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Subtotal Management Services												

Remarks

Project Total Cost			46848	22856		0		0			69704	

Remarks

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY **4. Advanced Component Development and Prototypes (ACD&P)**	R-1 NOMENCLATURE **0603883C Ballistic Missile Defense Boost Defense Segment**

COST ($ in Thousands)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
4090/0602 Program Operations	18172	18758	16229	16144	23201	25555	29492	31894
RDT&E Articles Qty	0	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification

Fiscal Years 2002 and 2003 are reflected in Project 4090 and Fiscal Years 2004 and out are in Project 0602.

This project covers personnel and related support costs, statutory and fiscal requirements.

Personnel covers government civilians performing program-wide oversight functions such as contracting, program integration, safety, quality and mission assurance at Missile Defense Agency (MDA), Executing Agents within the US Army Space & Missile Defense Command, US Army PEO Air and Missile Defense, US Navy PEO for Theater Surface Combatants, Office of Naval Research, and US Air Force.

Assistance required to support Missile Defense Agency program-wide management functions is also contained in this project. Typical efforts include cost estimating; audit; technology integration across MDA projects; and assessment of schedule, cost and performance, with attendant documentation of the many related programmatic issues. The requirements for this area are based on most economical and efficient utilization of contractors versus government personnel.

Fiscal Requirements include reimbursable services acquired through the Defense Working Capital Fund (DWCF) such as accounting services provided by the Defense Finance and Accounting Services (DFAS); reserves for special termination costs on designated contracts; and provisions for terminating other programs as required. MDA has additional requirements to provide for foreign currency fluctuations on its limited number of foreign contracts. Also includes funding for charges to canceled appropriations in accordance with Public Law 101-510.

Note that these funds are allocated across multiple Program Elements in accordance with the Fiscal Year 1996 Authorization Act, which directed these funds be allocated to the programs being supported rather than managed from a single source. This structure often makes it difficult to level-fund all PE's while maintaining an orderly fiscal structure for executing the individual Program Operations efforts.

B. Accomplishments/Planned Program

	FY 2002	FY 2003	FY 2004	FY 2005
Personnel	4492	4500	7132	5311
RDT&E Articles (Quantity)				

Provides funding for government salaries and benefits at the Missile Defense Agency that are associated with program-wide support.

MDA Exhibit R-2A RDT&E Project Justification	Date: February 2003
APPROPRIATION/BUDGET ACTIVITY: 4. Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE: 0603883C Ballistic Missile Defense Boost Defense Segment

	FY 2002	FY 2003	FY 2004	FY 2005
Management Support	9405	6592	7183	7470
RDT&E Articles (Quantity)				

Funds the contract SETA support costs directly associated with Missile Defense Agency program-wide support organizations. This effort provides the funding for the Missile Defense Agency's executing agents (Army Space and Missile Defense Command, Army PEO-AMD, Air Force, and Navy) including government salaries & benefits, SETA support, and various management/overhead costs.

	FY 2002	FY 2003	FY 2004	FY 2005
Fiscal Requirements	555	3474	1914	3363
RDT&E Articles (Quantity)				

This effort funds various requirements at the Missile Defense Agency, to include accounting services, special termination costs foreign currency fluctuations, and charges from cancelled appropriations.

	FY 2002	FY 2003	FY 2004	FY 2005
IM/IT Operations	3720	4192	0	0
RDT&E Articles (Quantity)				

This effort pays for Information Management/Information Technology requirements within the Missile Defense Agency. These requirements are moved to the Management Headquarters Program Element in Fiscal Years 2004-2009.

C. Other Program Funding Summary

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	To Complete	Total Cost
PE 0603175C Ballistic Missile Defense Technology	145021	151130	240820	205791	200956	247990	287864	306472		
PE 0603869C Meads Concepts - Dem/Val	0	114781	0	0	0	0	0	0		
PE 0603879C Advanced Concepts, Evaluations and Systems	0	0	151696	216778	166308	193949	241947	234484		
PE 0603880C Ballistic Missile Defense System Segment	790535	1046652	0	0	0	0	0	0		
PE 0603882C Ballistic Missile Defense Midcourse Defense Segment	3655089	3103844	3613266	3841412	2078522	1908511	1482389	1437923		